Chapter 7

MANPOWER ANALYSIS PROCEDURES AND GUIDELINES

1. **Manpower Analysis Committee**. The mission of the Committee is to provide guidance/support to the DAG/QLG on manpower issues; determine/validate manpower requirements associated with proposed consolidations/collocations; conduct audits of existing consolidated/collocated ITRO courses as required; and maintain a manpower audit trail for consolidation/collocation studies. Provide manpower support to the Cost Analysis and Facility Analysis committees by computing manpower requirements and ADSL to implement and sustain consolidation/collocation of training. Members of the Manpower Analysis Committee include:

Navy (Chair)	Chief of Naval Education and Training (/ETE431) 250 Dallas Street Pensacola, FL 32508-5220 DSN 922-3889 Comm (850) 452-3889
Army	Headquarters Training and Doctrine Command ATTN: ATRM-FT Fort Monroe, VA 23651-5388 DSN 680-5362 Comm (757) 727-5362
Marine Corps	Training and Education Command (C460) 2008 Elliot Road Quantico, VA 22134-5001 DSN 278-3085/3064 Comm (703) 784-3085/3064
Air Force (AF Medical)	Headquarters Air Education and Training Command (XPMRT) 1 "F" Street, Suite 102 Randolph AFB, TX 78150-4325 DSN 487-2095 Comm (210) 652-2095
Training Resource Coordinator	Headquarters Air Education and Training Command (DOZ) 2 “F” Street, Suite 2 Randolph AFB, TX 78150-4325 DSN 487-6363 Comm (210) 652-6363
Army—Medical	AMEDDC&S (MCCS-R) 2250 Stanley Road Fort Sam Houston, TX 78234 DSN 471-7348
Navy—Medical	BUMED-55 2300 E Street NW Washington, DC 20372 DSN 762-3820

a. Manpower Analysis Committee representation will be provided to all DAG resource requirements analyses unless Facilitating Service states otherwise.

b. The following guidelines for computing instructors for consolidation/collocations are provided:

(1) The DAG is responsible for providing course model information to the Manpower Analysis Committee. ITRO Form 3 documents the required information.

(2) All "before" (baseline) consolidation instructor requirements are to be identified using the instructor computation system unique to the individual Service. Instructor manpower requirements for any consolidated training will be computed using the ITRO instructor computation formula (Figures 13 and 14). Service unique tracks will be considered collocated. Each Service's unique instructor computation will be used to determine instructor requirements for Service unique tracks.

(3) The ITRO Manpower Analysis Committee on a case-by-case basis will address any proposed deviations from the above stated computational procedures.

(4) Instructor manpower requirements for collocated courses will be computed using each Service's own computation procedure.

(5) Constant changes in annual training requirements make it impractical to assume manpower authorizations in the out years reflect requirements. Therefore, all identification of manpower needs should be based on computed requirements and not existing authorizations.

(6) All student/instructor ratios within each course will be set at that point which yields the highest possible ratio without serious detriment to the quality of instruction. Student to instructor ratios, not instructional situations, will be use in computing instructor requirements.

(7) The Manpower Analysis Committee will address the minimum skill/grade level required for each function.

(8) For consolidated courses, instructor requirements for each Service will be a "fair-share" based on that Service's percentage of the total planned student input.

(9) When computing instructor manpower requirements for a course, maximum class size will be used unless it can be shown that other scheduling is more efficient.

(10)Instructor manpower requirements will be computed based on 40 hours of approved academic curriculum topics per week. Other requirements will occur outside of the training workweek requirement.

(11)All numbers used in the instructor computation will be taken to 2 decimal points. Instructor requirements will be rounded using rounding table in Figure 7-1.

FRACTIONAL MANPOWER REQUIRED		
BETWEEN...	...AND...	...ROUNDS TO
.001	1.077	1
1.078	2.154	2
2.155	3.231	3
3.232	4.308	4
4.309	5.385	5
5.386	6.462	6
6.463	7.539	7
7.540	8.166	8
8.167	9.693	9
9.694	10.770	10
10.771	11.847	11
11.848	12.924	12
12.925	13.999	13
14.000	14.999	14
15.000	15.999	15
ETC.	ETC.	ETC.

Figure 7-1, Fractional Manpower Rounding Table

c. The following guidelines for determining Detachment, Training Support/School Overhead, BOS, and Student Load are provided:

(1) Detachment requirements will be computed using each participating Service's methodology.

(2) Base Operating Support (BOS) personnel requirements for the study will be determined using each participating Service's factors. The Manpower Committee will provide the BOS personnel requirement to their respective Cost Analyst. Fractional BOS Personnel requirement that is less then one will not be rounded. Fractional BOS Personnel requirement that is more than one will be rounded to the next whole number at 0.8. (NOTE: needs to be staffed with Manpower Committee)

(3) Training support/school overhead requirements will be identified/validated on a case-by-case basis by the ITRO Manpower Analysis committee and approved during normal staffing.

(4) Average daily student load (ADSL) will be computed using student input, multiplied by course length in training weeks, and divided by 50. All fractional ADSL for the study will be totaled and rounded to the next higher whole number at 0.5.

(5) The Service's manpower committee representative will identify planned student input for computations.

(6) Distance learning situations for consolidated training will be addressed on a case-by-case basis. The DAG will ensure the committee is informed if any consolidated training will be taught using a form of distance learning; i.e., VTT, VTC, CBT, etc.

(7) To account for student check in/out processing and determine population change for BOS costs/savings, analysts will add .5 days per week (.1 weeks), up to a maximum of 2 days (.4 weeks), to the course length for proposed consolidated courses for Army and Marine Corps. Navy and Air Force will add these times to both the baseline and proposed course lengths. No instructor hours will be allowed for the additive.

d. The following information is included for guidance when determining manpower requirements for consolidated/collocated training.

(1) Training support/direct support is work performed by the School and for the School only. The support requires full time dedication to the School operation and is there to support the School/training. Instructors are required to perform some training support functions and their time to accomplish these duties is computed in the 1.26 Instructor Prep and Related duties/Working Level factor in the ITRO Instructor Computation formula. Training support functions include, but are not limited to, the following:

(a) Supervision of Staff – leave approval, evaluation prep, safety compliance
(b) Proficiency Evaluations
(c) Classified Material Handling
(d) Planning, programming, and budgeting for replacement of training support material, training aids and equipment.
(e) Maintaining current instructor guides, curriculum and tests
(f) Counseling of students
(g) Integration of risk management and enforcement of safety regulations
(h) Publications, training aids, equipment and materials accountability
(i) Inspections
(j) Functional control over student critiques, testing, curricula documentation reviews, classroom monitoring and in-service training
(k) Quality assurance of training
(l) Providing directions, guidance and assistance to instructors in writing or re-writing curricula
(m) Liaison with facilities and schoolhouse personnel
(n) Conducting debriefing of newly assigned instructors
(o) Monitoring enrollment/disenrollment procedures
(p) Qualifying new instructors
(q) Maintaining training aids
(r) Contract oversight

(2) Base operating support (BOS) are functions that support the installation and do not support a single activity aboard the installation. The support is indirect and general in nature. BOS functions include, but are not limited to, the following:

(a) Command support
(b) Information management
(c) Logistics
(d) Comptroller
(e) Civilian Personnel

(f) Engineering, Public Works
(g) Safety
(h) Family Services
(i) Food Services
(j) Education Services
(k) Morale, Welfare and Recreation
(l) Security
(m) Bachelor Quarters
(n) Chaplain
(o) Legal
(p) Supply
(q) Fire Department
(r) Audio Visual
(s) Equal Opportunity
(t) Contract management
(u) Health Services (Hospital, Sick Call, etc)

e. Manpower Analysis Committee Chairman will call committee meetings as necessary. Minutes of the committee meeting will be prepared and agreed to by all members.

f. Revisions/modifications to manpower analysis procedures will be made as required by ITRO Manpower Analysis Committee. Revisions/modifications will be agreed on by all members and submitted for inclusion in the Procedures Manual.

g. Manpower Committee representatives will brief the DAG on the results of the computations.

h. Manpower requirements audit forms will be used to provide information to Cost Analysis and Facilities Analysis Committees.

2. **Manpower Requirements Determination**. It is the responsibility of the DAG to provide the information necessary to determine manpower requirements. A member(s) of the Manpower Analysis Committee will be available to assist in gathering the necessary data and to apply the appropriate ITRO formula. In addition, it is the responsibility of each Service's Manpower Analysis Committee member to validate the requirements for his Service. The Manpower Analysis Committee, prior to consolidation, will ensure that student/instructor ratios, class size, and convening frequency are set at optimum points. This analysis may include a review of configuration of training facilities and equipment. The formulas/forms in this chapter have been developed for use in determining instructor manpower requirements.

3. **Instructor Computations**. Two instructor computation forms (Figure 7-2 and Figure 7-3) have been designed to record all necessary data and to simplify the computation procedure. The following Instructor instructions apply to both forms, and are followed by additional instructions for Mobile Training Team computations.

a. Section I contains the planning information required; e.g., course identification, student input, course length, class sizes, and number of classes scheduled for training. Fractional class sizes or number of classes programmed will normally be rounded to the next whole number.

b. Section II breaks out a course curriculum by training situation and gives the number of syllabus (hours of instruction) hours and the student to instructor ratios for each training situation. The sum of the syllabus hours will equal the program of instruction (POI). Syllabus hours used for computing instructor requirements will not include nonacademic hours (General Military/Physical Training); an exception may be made if this type of training is an integral part of the training requirement for the specialty; i.e. Survival Training. When determining instructors required for each training situation, instructor man-hours required will be carried to two decimal points. From this information, the number of instructor man-hours required to teach one class is computed.

c. Section III is the computational process that determines total instructor requirements. It includes a factor of 1.26 for working level supervision of the course and instructor preparation and related duties. Functions performed by working level supervisors include, but are not limited to, instructor break-in, instructor evaluation, scheduling of students, scheduling of instructors, reports and administrative, consultation with instructors, trainee evaluation, liaison (phases and courses), and curriculum maintenance. Instructor preparation and other related duties consist of lesson plan update, preparation of handouts, training aids, set-up of demonstrations, slides, movies, equipment/tool inventory, grading and

recording grades, building security, classified materials, student counseling, records, technical manual updates, consultation with supervisors, curriculum maintenance, remedial training, and rehearsals. The average monthly man-hours available factor of 145 includes allowances for leave, medical, military duties, etc. (i.e. contingent unavailable). Fractional instructor requirements will be rounded in accordance with Figure 7-1. However, when more than one course is being considered for consolidation and the courses are compatible enough to cross-utilize instructors, fractional instructor requirements of courses will be totaled and then rounded in accordance with Figure 7-1. In rare instances, such as low-flow, equipment-oriented courses where instructor cross-utilization is not feasible, there may be a need to establish a minimum instructor requirement for the course. The Committee will evaluate these situations on a case-by-case basis.

(1) If an instructor requirement adjustment is determined necessary by the ITRO Manpower Analysis Committee, the adjustment will be expressed as an additive/subtractive. The Subject Matter Expert or other appropriate schoolhouse personnel must justify the adjustment, in writing. As stated above, these will be determined on a case-by-case basis. The exception will be included in the ITRO Instructor Computation worksheet as a separate line to identify the instructor contact hours (ICH) required for the exception. Additionally, a separate note should be added to the worksheet to provide rationale/justification for the exception.

(2) For quota courses, the ITRO Instructor Computation formula is not required to determine instructor requirements but can be used if all parties agree.

d. Section IV will reflect the instructor requirement as apportioned by Service. The rounded instructor requirement computed in Section III will be apportioned, on a "fair share" basis, among the host and participating Services based on the percentage of total student input from each Service. Normally, fractional requirements for an individual Service will be rounded up if .5 or higher. However, the total of the individual Service requirements will be adjusted, if necessary, to equal the total instructor requirement as computed in Section III.

4. **Special Instructions for Mobile Training Team (MTT) Instructor Computation**

a. An instructor computation form (Figure 7-3) has been designed to record all necessary data and to simplify the computation procedure. The procedure for determining instructors required for MTT courses is basically the same as for lockstep courses. Modifications are described below.

b. Section I planning data has been expanded to include annual travel hours (ATH). This is determined by taking annual travel day's times eight hours per day times the number or travelers. The annual travel days will be based on the projected schedule of the MTT. The lowest student to instructor ratio identified in Section II of the computation form will be the number of personnel required for the MTT team and equate to the number of travelers. This data is normally provided by the host Service and will be validated by committee members.

c. Section III has been modified to allow for the travel time associated with MTT. Factors allowed for working level supervision and instructor preparation and related duties (1.26) are identical to those allowed in the lockstep formula. Annual travel hours will be added to annual instructor hours to allow for the impact of travel time to instructors required.

d. Section II and IV are identical to the lockstep instructor computation form and procedures defined in the lockstep formula will be used.

ITRO INSTRUCTOR COMPUTATION (LOCKSTEP)

SECTION I COURSE DATE

DATE:	15-Sep-97
OPTION:	Option 1
COURSE #:	Host Service Course Number
TAUGHT AT:	Site Location

COURSE TITLE: Training Example

PROGRAMMED ANNUAL INPUT		**% OF INPUT**		
USA	**130**	**41.01%**	**COURSE LENGTH (CALENDAR DAYS):**	**47**
USN	**84**	**26.50%**	**COURSE LENGTH (TRNG DAYS):**	**35.00**
USMC	**36**	**11.36%**	**COURSE LENGTH (WKS+.4 PROCESSING**	**7.40**
USAF	**55**	**17.35%**	**TOTAL SYLLABUS HOURS**	**274.50**
USCG	**12**	**3.79%**	**PROGRAMMED # CLASSES/YR**	**10.57**
TOTAL	**317**	**100.00%**	**ROUNDED INTERATIONS:**	**11.00**

SECTION II CIRRICULUM BREAK OUT

TRAINING SITUATION	**PROGRAMMED CLASS SIZE**	**MAX /RATIO**	**=**	**INSTRUCTORS REQUIRED**	**SYLLABUS XHOURS**	**INSTRUCTOR =MANHOURS**
LECTURE	**30.00**	**30.00:1**		**1.00**	**155.50**	**155.50**
DEMO	**30.00**	**6.00:1**		**5.00**	**205.50**	
PERF EXAM	**30.00**	**5.00:1**		**6.00**	**55.00**	**330.00**
EXAM	**30.00**	**3.00:1**		**10.00**	**12.00**	**120.00**
WRITTEN TEST	**30.00**	**15.00:1**		**2.00**	**2.00**	**4.00**
	TOTAL INSTRUCTOR MANHOURS/CLASS:				**274.50**	**1481.50**

SECTION III INSTRUCTOR COMPUTATION

TOTAL INSTRUCTOR HOURS PER CLASS X PROGRAMMED # OF CLASSES=ANNUAL INSTRUCTOR CONTACT HOURS	**16296.50**
ANNUAL INSTRUCTOR CONTACT HOURS X 1.26 (SUPERVISION, PREPARATION AND RELATED DUTIES)=ANNUAL INSTRUCTOR HOURS	**20533.59**
ANNUAL INSTRUCTOR HOURS/12=MONTHLY INSTRUCTOR HOURS	**1711.3**
MONTHLY INSTRUCTOR HOURS/145=INSTRUCTORS REQUIRED	**11.80**

SECTION IV INSTRUCTOR REQUIREMENTS BY SERVICE

USA	USN	USMC	USAF	USCG	TOTAL
4.84	**3.13**	**1.34**	**2.05**	**0.45**	**11.80**
5.00	**3.00**	**2.00**	**2.00**	**1.00**	**13.00**

AVERAGE DAILY STUDENT LOADS (ADSL)

20	***13***	***6***	***9***	***2***	***50***

REMARKS

Because ITRO Course requires 12 Instructors, one Service will be allowed to reduce their requirement--Probably USCG.

FIGURE 7-2, Standard ITRO Instructor Computation

ITRO INSTRUCTOR COMPUTATION (MOBILE TRAINING TEAM)

SECTION I COURSE DATE

DATE: 26-Sep-97
OPTION: Option 1
COURSE #: Host Service Course Number
TAUGHT AT: N/A

COURSE TITLE: Training Example

PROGRAMMED ANNUAL INPUT		**% OF INPUT**		
USA	**175**	**52.24%**	**COURSE LENGTH (CALENDAR DAYS):**	**42.00**
USN	**55**	**16.42%**	**COURSE LENGTH (TRNG DAYS):**	**31.00**
USMC	**25**	**7.46%**	**COURSE LENGTH (WKS+.4 PROCESSING**	**6.60**
USAF	**70**	**20.90%**	**TOTAL SYLLABUS HOURS**	**246.00**
USCG	**10**	**2.99%**	**PROGRAMMED # CLASSES/YR**	**11.17**
TOTAL	**335**	**100.00%**	**ROUNDED INTERATIONS:**	**12.00**
			ANNUAL TRAVEL DAYS X 8 HOURS PER DAY X NUMBER OF TRAVELERS=	**64.00**

SECTION II CIRRICULUM BREAK OUT

TRAINING SITUATION	**PROGRAMMED CLASS SIZE**	**MAX /RATIO**	**=**	**INSTRUCTORS REQUIRED**	**SYLLABUS XHOURS**	**INSTRUCTOR =MANHOURS**
NON-ACADEMIC	**30.00**	**30.00:1**		**0.00**	**5.00**	**0.00**
LECTURE	**30.00**	**30.00:1**		**1.00**	**50.00**	**50.00**
PRAC APP	**30.00**	**15.00:1**		**2.00**	**175.00**	**350.00**
PRAC EXAM	**30.00**	**6.00:1**		**5.00**	**15.00**	**75.00**
WRITTEN TEST	**30.00**	**15.00:1**		**2.00**	**6.00**	**12.00**
	TOTAL INSTRUCTOR MANHOURS/CLASS:				**246.00**	**487.00**

SECTION III INSTRUCTOR COMPUTATION

TOTAL INSTRUCTOR HOURS PER CLASS X PROGRAMMED # OF CLASSES=ANNUAL INSTRUCTOR CONTACT HOURS	**5844.00**
ANNUAL INSTRUCTOR CONTACT HOURS X 1.26 (SUPERVISION, PREPARATION AND RELATED DUTIES)=ANNUAL INSTRUCTOR HOURS	**7427.44**
ANNUAL INSTRUCTOR HOURS/12=MONTHLY INSTRUCTOR HOURS	**618.95**
MONTHLY INSTRUCTOR HOURS/145=INSTRUCTORS REQUIRED	**4.27**

SECTION IV INSTRUCTOR REQUIREMENTS BY SERVICE

USA	USN	USMC	USAF	USCG	TOTAL
2.23	**0.70**	**0.32**	**0.89**	**0.13**	**4.27**
2.00	**1.00**	**0.00**	**1.00**	**0.00**	**4.00**

AVERAGE DAILY STUDENT LOADS (ADSL)

24	***8***	***4***	***10***	***2***	***48***

REMARKS

FIGURE 7-3 MTT Instructor